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**Distribution records for *Zenopsis picea*
(Palisot de Beauvois, 1805) (Coleoptera: Callirhipidae)
from the United States.**

Edwin L. Freese¹

Abstract

The known range of *Zenopsis picea* (Palisot de Beauvois) (Coleoptera: Callirhipidae) is summarized based on data from specimens, literature, and internet sources. This species, the only known member of the Callirhipidae occurring north of Mexico and previously thought uncommon, is recorded from 26 states and the District of Columbia in the United States. Its documented range is from Florida north to New Jersey, west to Iowa and Texas. No records are known from Mexico or Canada.

Zenopsis picea (Coleoptera: Callirhipidae) was described by Ambroise Marie Francois Joseph Palisot, Baron de Beauvois (1752-1820), in 1805, after his return to Paris from expeditions in America and Africa (Palisot de Beauvois 1805, Chase 1925, Griffin 1932, Merrill 1937, Thomas 2009, Hájek 2011; Hájek, personal communication). The original generic assignment was *Melasis*, by French entomologist Guillaume-Antoine Olivier, derived from the Greek for "black" which describes the insect as does the species name *picea* (Palisot de Beauvois 1805). In 1835, Thomas Say transferred the species to his new genus *Zenopsis*, Greek for "a stoic" (Say 1835). Today *Melasis* (Olivier, 1790) is included in Eucnemidae (Eschscholtz 1829) the false click beetles (Muona 2002). Family status of this species has changed over the years with the most recent change being from Rhipiceridae (Latrielle 1834) to Callirhipidae (Emden 1924) (Crowson 1950, 1955, 1971, 1973; Kasap and Crowson 1975; Forbes 1926; Lawrence and Newton 1982, 1995; Lawrence et al. 2000; Young 2002; Hunt et al. 2007; Hájek 2011). Palisot de Beauvois (1805) originally included this species in the *Sternonoxes* (Buprestidae).

This species is the only North American member of the Callirhipidae (Young 2002) and is seldom covered in field guides and textbooks. Adults are shining dark brown to black, 11-15 mm long, and found under logs and bark and prefer dry upland woods (Hájek 2011); they may be short-lived and nocturnal being attracted to lights (Young 2002). Males have pectinate antennae and females have serrate antennae (Palisot de Beauvois 1805); males are more commonly collected at lights while females are more often collected on or reared from rotten wood (Hoffman et al. 2002). Larvae are found in rotten or dead wood (Lawrence et al. 2000) "usually in the presence of white-rot fungi." (Young 2002). Palisot de Beauvois (1805) indicated the species lives on old trunks.

The objective of this paper is to update the known range distribution of *Zenopsis picea* in the United States and to document its distribution in Iowa. Young (2002) indicated its range as "southeastern United States, northwest to southern Illinois." After discovering this species in Iowa, far from its known

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range, I conducted a literature survey for additional records and contacted curators of entomological collections requesting specimen label data for this species. Field studies were made in Iowa to determine the range of the species in that state. The results of those data collection efforts are reported here. Data are reported herein from Iowa specimens, institutional and private collections, and literature searches.

Methods

Adult specimens were collected in Iowa during the field seasons of 2003-2012. Several methods were used including black light and florescent light in upland woodlands and inspecting logs and tree trunks with a flashlight at nighttime, along with searching logs and under bark during the daytime. Data also were obtained from on-line websites of several insect collections. The literature was searched for references on Palisot de Beauvois, state records, and information on species habits and range. Collections within Iowa were perused for specimens and out-of-state institutional collections were contacted to obtain label data.

The following institutions, museums, collections, and individuals were queried for label data for this paper (abbreviations are those used in the text below).

ABSC = Mark Deyrup, Archbold Biological Station, Venus, Florida

AVEC = Arthur V. Evans, Smithsonian, Washington, D. C., personal collection

CASC = Norman Penny, California Academy of Sciences, Golden Gate Park, San Francisco

CISC = Cheryl Barr, Essig Museum of Entomology, University of California, Berkely

CNCI = Serge Laplante, Canadian National Collection of Insects, Ottawa, Ontario

DAVC = Doug A. Veal, Marion, Iowa, personal collection

ELFC = Edwin L. Freese, Adel, Iowa, personal collection

FMNH = James H. Boone, Field Museum of Natural History, Chicago

FSCA = Paul Skelley, Florida State Collection of Arthropods, Gainesville

INHS = Paul P. Tinerella, Illinois Natural History Survey, Champaign; James N. Zahniser, University of Illinois at Urbana/Champaign, Champaign

ISIC = Iowa State University insect collection, Ames (Edwin L. Freese)

JODC = James O. Durbin, Marion, Iowa, personal collection

JPGC = Jeffrey P. Gruber, Madison, Wisconsin, personal collection

MJPC = Matt J. Paulsen, Lincoln, Nebraska, personal collection

MSUC = Gary Parsons, A. J. Cook Arthropod Research Collection, Michigan State University, East Lansing

OSEC = Donald C. Arnold, K. C. Emerson Entomological Museum, Oklahoma State University, Stillwater

OSUC = Creighton T. Freeman, Charles A. Triplehorn Insect Collection, Ohio State University, Columbus

PKLC = Paul K. Lago, University of Mississippi, University, personal collection

SEMC = Zachary Falin, Snow Entomological Museum, University of Kansas, Lawrence; Jennifer C. Thomas, Natural History Museum, University of Kansas, Lawrence

TAMU = Edward G. Riley, Texas A and M University, College Station

UALR = Jeff K. Barnes, University of Arkansas, Little Rock

UCFO = Shawn L. Kelly, Department of Biology, University of Central Florida, Orlando

UMMZ = Mark F. O'Brien, University of Michigan Museum of Zoology, Ann Arbor

UMRC = Kristin B. Simpson, Enns Entomological Museum, University of Missouri, Columbia

UMSP = Ralph W. Holzenthal, University of Minnesota, St. Paul

UNSM = Federico C. Ocampo and Matt J. Paulsen, University of Nebraska State Museum, Lincoln

USNM = Richard L. Hoffman, Virginia Museum of Natural History, Martinsville, records from United States National Museum, The Smithsonian, provided via copy of his paper in *Banisteria* (Hoffman et al. 2002)

VMNH = Richard L. Hoffman, Virginia Museum of Natural History, Martinsville

WIRC = Steven J. Krauth, Wisconsin Insect Research Collection, University of Wisconsin, Madison

Results

Zenopsis picea specimen records by state as obtained from collections, published sources, and the internet; data as conveyed to me by a given collection manager-curator or as gleaned from the published literature; number of specimens per date and location in brackets are reported below.

ALABAMA: NEW STATE RECORD. Tuscaloosa, 14 July 1950 [2], B. D. Valentine (FMNH); Walker Co., Jasper, 13 July 1980 [1], T. King, blacklight trap (FSCA); Mobile Co., Mobile, 11 June 2010, male [1], Robert Lord Zimlich, <http://bugguide.net/node/view/409944>; Jefferson Co., Vestavia, 10 August 1980 [1], T. King (CNCD); Montgomery, 7 July [1], Van Dyke Collection (CASC).

ARKANSAS: NEW STATE RECORD. Ashley, Faulkner, Lee, Monroe, Pulaski, and Washington counties (UALR); Carroll Co., Eureka Springs, 30 July 1980 [1], J. R. Heitzman, blacklight (FSCA).

DELAWARE: NEW STATE RECORD. Specimen in alcohol [1] (CUAMD 2007).

FLORIDA: Alachua Co., Gainesville, June 2003 [1], J. M. Leavengood, Jr.; 7 June 1994 [1], E. H. Nearn; 12-16 June 1989 [1], P. J. Landolt; 28-30 June 1985 [1], 10 July 1980 [1], L. R. Davis, Jr.; 23 June 1959 [1], 16 July 1962 [1], J. W. Perry, light trap; June 1967 [1], September 1967 [1], September 1968 [1], L. A. Hetrick; 15 August 1962 [1], L. Rogers, light; 23 July 1963 [1], R. P. Esser, light; 24 June 1978 [1], R. A. Belmont, blacklight trap; Alachua Co., Gainesville, San Felasco Preserve, 14 June 1995 [1], E. H. Nearn; Alachua Co., Gainesville, Hogtown Creek, 19 June 1988 [2], P. Skelley, light trap; Alachua Co., Gainesville, Doyle Conner Building, 6-8 August 1973 [1], 23 May 1978 [1], 1-4 September 1972 [1], F. W. Mead, blacklight trap; Alachua Co., Gainesville, Belville Hts., 1 July 1980 [1], 2 July 1980 [2], L. A. Stange, blacklight trap; Alachua Co., Paynes Prairie, 16 July 1973 [1], D. P. Wojcik, blacklight trap; Clay Co., Goldhead SP, 8 June 1986 [1], L. Cicero; Dixie Co., 24 June 2001 [1], D. Almquist; uv light, salt marsh; Liberty Co., Torreya SP, 16 July 1987 [1], Matthews and Skelley, light; Palm Beach Co., Belle Glade, 2 October 1976 [1], R. A. Belmont; Putnam Co., Little Orange Lake, 3 June 1984 [1], K. W. Vick, blacklight trap; Putnam Co., Welaka Forest, 28-31 July 1986 [1], J. B. Heppner; Sebring, 18 May 1946 [1], H. Mason; Leon Co., Tallahassee, June 2006 [2], D. T. Alquist, uv light, backyard, mesic with hardwood trees (FSCA); Osceola Co., Walt Disney World, Sand Pine Plantation, 13 June 1996 [1], S. Fullerton, blacklight trap; Orange Co., Walt Disney World, Epcot Parking Site, Bayhead, 12 June 1996 [1], 1 July 1996 [1],

Z. Prusak, and S. Fullerton, blacklight trap; Lake Co., Clermont, Arrowhead Estates, 2 July 2004 [1], S. L. Kelly and S. M. Fullerton, uv light, residential, red maple swamp (UCFO); Highlands Co., Highlands Hammock St. Pk., 15 June 1965 [1], blacklight trap, L. and C. W. O'Brien; 23-25 June [19]81 [2], uv light trap, S. Peck (CNCI); Florida (Downie and Arnett 1996); Florida (Staines 1983); Florida (Hájek 2011).

GEORGIA: Dekalb Co., Stone Mtn. area, 3 July 1970 [1], J. E. Wappes (FSCA); Georgia, USNM (Hoffman et al. 2002); Georgia (Hájek 2011).

ILLINOIS: Starved Rock, 10 August 1924 [1]; Piatt Co., 18 July 1971 [1], Reaves and Hollander; Union Co., Wolf Lake, 5 August 1963 [1], H. S. Dybas (FMNH); Stoney Brook, 12 July 1958 [2], Selander and Bouseman; Cornland, 10 July 1943 [1], Ross and Sanderson, reared decayed log; Mascoutah, 17 July 1906 [2], in woods; Homer Park, 11 July 1927 [1], T. H. F and R. D. G., at light; Putnam Co., 10 August 1932 [2], M. O. Glenn; Urbana, B'field Woods, 28 July 1945 [8], H. H. Ross; Bolter Coll. Univ. of Ill. [4] (INHS); Macon Co., NW side of Decatur, 12 July 1980 [1], 29 July 1981 [1], 6 July 1982 [1], 17 July 1983 [1], P. Skelley, light; Urbana, 22 July 1927 [1], A. E. Miller, from rotten log (FSCA); southern Illinois, Benj. D. Walsh, under bark, larva and adult (Osten Sacken 1862; Packard 1889); Vermillion Co., 4 July 1961 [1] L. D. Collom (CNCI); Illinois, female [1], Van Dyke Collection (CASC); C. Ill. (ISIC); southern Illinois (Young 2002); Illinois, USNM (Hoffman et al. 2002); Illinois (Hájek 2011).

INDIANA: Tippecanoe Co., 16 August 1972 [1], 17 July 1963 [1], 16 August 1967 [1]; Tippecanoe Co., Lafayette, 27 June 1990 [1]; Lafayette, 25 June 1991 [1]; Lawrence, 2 July 1934 [1], 20 July 1967 [1], N. M. Downie (FMNH); Tippecanoe Co., W. Lafayette, 7 July 1981 [1], M. and N. Deyrup (ABSC); W. Co., 16 August 1945 [1] (INHS); Vincennes, 12 July 1931 [1] (OSUC); Posey Co., 9 July 1923 [1] (UMMZ); Monroe Co., Bloomington, 23-24 July 1984 [1], F. N. Young, BLT; Indianapolis, Camp Belzer, BSA, 5 July 1966 [1], 11 July 1966 [1], C. E. White; Warren Co., 16 August 1966 [1], C. D. Kerst (FSCA); Tippecanoe Co., 16 July 2006 [1], Brad Barnd, "This specimen collected at night from trunk of mulberry tree that had a decent sap flow.", <http://bugguide.net/node/view/96003>; same location, collector, uv light, 9 July 2007 [1], <http://bugguide.net/node/view/162491>; Montgomery Co., Shades State Park, 22 July 2006 [1], Brad Barnd (Brad Barnd, personal collection and communication); Vigo, Putnam, and Posey Counties; "scarce" (Blatchley 1910); Indiana (Downie and Arnett 1996); Indiana (Hájek 2011).

IOWA: Henry Co., "Phipceridae Zenoa picea beneath logs" [Spelling error as published.] (King 1914); Wickham (1911) did not list as known from Iowa; Johnson Co., Saylorville Lake, 16-31 July 1983 [2], R. H. Schieferstein (FSCA); Johnson Co., Saylorville Lake, 16-31 July 1983 [2], R. H. Schieferstein (TAMU); Louisa Co., 5 August no year given [1], G. Warren (FMNH); Hájek (2011) and previous investigators missed published record of King (1914).

Fifty two adults were collected in Iowa during this study. Three specimens were collected in southeastern Iowa at Shimek State Forest, Van Buren Co., 2 August 2003 by Doug A. Veal using a combination UV-florescent light (DAVC, JPGC) and a fifth specimen was collected at the same location and lights 22 August 2004 (DAVC). A fourth specimen was collected in southwest Iowa at Waubonsie State Park, Fremont Co., 16 July 2004, using the same combination light, DAV (DAVC). A sixth specimen was collected in central Iowa at Hardin City Woodland State Preserve, Hardin Co., 16 July 2005, by Edwin L. Freese, using a black light (DAVC). More Iowa specimens were collected at Waubonsie State Park on 13 July 2009 [1] (ELFC), 24 July 2009 [7] (ELFC, DAVC), 2 July 2010 [1] (DAVC), 27 July 2010 [1] (ELFC), 5 August 2010 [1] (DAVC), 1 August 2011 [1] (DAVC), 9 June 2012 [2] (ELFC, DAVC), 12 July 2012 [2] (DAVC, ELFC), using the same combination light; 8 August 2009 [2] and 4 August 2010 [1] by James O. Durbin with black light (JODC); 14 July 2010 [2] (DAVC, ELFC) and

27 July 2010 [2] (ELFC) on firewood pile using flashlight. Further specimens were collected at Sharon Bluffs State Park, Appanoose Co., 22 July 2010 [7] (ELFC) and 26 July 2011 [4], black light, ELF (these four specimens forwarded to Jiří Hájek, The National Museum, Prague, Czech Republic, for DNA testing); 5 July 2012 [10] (DAVC, ELFC). The most recent new county record, Dallas Co., Raccoon River watershed, 18 June 2012 [1] combination light and 6 July 2012 [1] security light, wooded back yard (ELFC).

KANSAS: Lawrence, Topeka, and Tonganoxie (Popenoe 1877); Jefferson Co., 18 July 2006 [1], Zack Falin, UV light; Crawford Co., Pittsburg, 14 July 2007 [1], Glenn A. Salsbury, UV light; Crawford Co., Frontencac, 21 July 2008 [1], Glenn A. Salsbury, UV light (SEMC); Douglas Co., F. H. Snow [2], determined by J. W. Angell "There were no dates on these specimens, but they were probably collected in the late 1800's as Professor Snow was the founder and curator of the entomology collection from 1870 to 1901." (Jennifer C. Thomas, personal communication); Douglas Co., Lawrence, 7 July 1925 [3], W. Benedict; Anderson Co., Garnett, 24 July 1956 [1], D. S. Lang (SEMC); Pottawatomie Co., 21 July 1955 [1] (FSCA); Douglas Co., 1923 [1], W. J. Brown (CNCI); Johnson Co., Mission, 10 July 2009, male [1], porch light, 1950s suburb with assorted mature trees, Betsy Betros, <http://bugguide.net/node/view/494970> (Betsy Betros, personal communication); Kansas (Staines 1983); Kansas (Hájek 2011).

KENTUCKY: Hickman, July 1937 [1], E. E. Byrd (FMNH); specimen labeled only Kentucky [1] (UMMZ); "Murphy's Pond, Hickman Co., KY., 1964, J. M. Campbell, Reared from larva coll. in oak stump; larva coll. IV-17-1964, Adults emerged VI-22-1964" [5] (CNCI); Kentucky, USNM (Hoffman et al. 2002); Kentucky (Hájek 2011).

LOUISIANA: Jefferson Parrish., Kenner, 9 July 1956 [1], H. L. Dozier, lights; Baton Rouge, 24 June 1961 [1], Gary N. Ross; Edgard, 14 June 1973 [1], 29 June 1973 [1], 5 July 1973 [1], V. Brou, uv light; Sunshine, June 1972 [1], 5 June 1972 [1], 11 June 1972 [1], 13 June 1972 [2], 22 June 1972 [1], 3 August 1972 [1], 8 August 1972 [1], 9 August 1972 [1], 11 August 1972 [2], V. A. Brou, blacklight trap (FSCA); Assumption, Caddo, East Baton Rouge, Franklin, Iberville, Saint James, Saint John the Baptist, Saint Martin, Tensas, West Baton Rouge, and West Feliciana (LSAM 2009); East Baton Rouge Parish (TAMU); Madison Co., Mound [1] (UMSP); Lake Pontchartrain region (Sommers 1874); Norco, Bonnet Carre Spillway, St. Charles Parish, 30 May 1971 [2], 12 June 1971 [1], Eric H. Metzler, determined D. K. Young (MSUC); Madisonville, 1 July [19]83 [1], BF and JL Carr (CNCI); Caddo Parish, Shreveport, July 1973 [1], Cheryl B. Barr; Feliciana Parish, Tunica Hills, Weyanoke, 15 August 1986 [1], 26 June 1987 [1], C. B. Barr, BL and MV; St. Tammany Parish, Pearl River, 17 June 1982 [1], C. B. Barr and E. G. Riley, black light (CISC); Louisiana, USNM (Hoffman et al. 2002); Louisiana (Hájek 2011).

MARYLAND: Anne Arundel Co., Edgewater, 27-29 July 1983 [1], 29 July-1 August 1983 [1], 30 July-11 August 1988 [1], 5-10 August 1988 [1], 13-16 July 1990 [1], 19-22 July 1991 [1], 16-18 July 1992 [2], 7-10 August 1992 [1], 20-27 July 1993 [1], 18-20 July 1994 [2], 20-22 July 1994 [1], 22-25 July 1994 [1], 25 July-1 August 1994 [1], C. L. Staines, Jr., blacklight (FSCA); Anne Arundel Co., Annapolis, 1 August 1988, male, [1], Frank Guarnieri, collected at light, <http://bugguide.net/node/view/361079>; Anne Arundel Co., 24 July 1995 [1], M. E. Epstein and WES, "At black light; open sandy gap in mixed forest", USNM; Baltimore Co., Essex, 26 April 1987 [1], WES and J. M. Swearingen, under driftwood and debris on sand beach", USNM; Charles Co., Smallwood State Park, 27 July 2002 [2], WES, J. M. Swearingen et al., "At black light in mature mixed forest", USNM; Montgomery Co., Ashton, 27 July [1] and 30 July 2002 [1], G. F. Hevel; Cabin John Bridge, 28 July 1912 [1], F. Knab, USNM; Jacksons Island, 8 August 1920 [1], H. S. Barber, USNM; North Potomac, 6 July 2002 [1], Steven Lingafelter, blacklight, USNM; Plummer's Island, 5 November 1905 [3], H. S.

Barber, larvae, "in log of sassafras", USNM; 22 July 1995 [2], M. E. Epstein, WES, and J. M. Swearingen, "In mixed forest; at black light on island summit". USNM; 16 July 1997 [1], M. E. Epstein, WES, J. M. Swearingen, USNM; 13 July 2002 [2], WES, J. M. Swearingen et al., "On rotten wood at base of dead standing *Quercus rubra* at dark", USNM; Rockville, 2 July 1980 [1], 26 July 1980 [1], Scott W. Gross, USNM; Prince Georges Co., Cedarville State Forest, 20 July 2002 [1], WES, J. M. Swearingen et al., "At black light at edge of mature mixed forest near open pond", USNM; same location, date [1], collectors, "on rotten wood in hollow base of beech", USNM; College Park, 18 July 1942 [1], George B. Vogt, light, USNM (Hoffman et al. 2002); Anne Arundel Co., Edgewater, 15 July 1980; Baltimore Co., Hebbville, 17 July 1969, Ten Hills, 22 July 1982, at light, R. S. Bryant collection; Harford Co., Aberdeen, 10 July 1963; Montgomery Co., Cabin John, 28 July 1912; Plummer's Island, 19 August 1903, 15 August 1916, 6 August 1918 (Staines 1983); Maryland (Hájek 2011).

MICHIGAN: NEW STATE RECORD. Wayne Co., Grosse Ile, 21 July 1956 [1], Geo. Steyskal (MSUC); No specimens in UMMZ collection (Mark F. O'Brien, personal communication).

MISSISSIPPI: NEW STATE RECORD. Lafayette Co., Oxford, 2 August 1978 [1], 29 July 1988 [1], 26 June 1988 [1]; Issaquena Co., 2 mi SW Shipland, 20 June 1992 [2], Paul K. Lago (PKLC).

MISSOURI: St. Louis, 24 June 1896 [1]; Columbia, 16 July 1904 [1]; Columbia, 16 July 1956 [1], M. S. Enns; Columbia, 6 July 1968 [4], 9 July [1] 1968, reared indoors from larvae from rotten log collected in April, W. S. Craig; Columbia, 17 July 1966 [1], P. L. Andrews; Columbia, 20 July 1948 [1], M. A. Rowoth; Columbia, 1 August 1968 [1], C. Garry; Boone Co., Columbia, 10 July 1967 [2], 11 July 1967 [1], 19 July 1967 [1], 20 July 1967 [1], 23 July 1967 [2], 25 July 1967 [1], 27 July 1967 [3], 29 July 1967 [1], 31 July 1967 [1], 6 August 1967 [4], light trap collecting; Boone Co., Columbia, 27 July 1976 [1], black light trap, 17 July 1977 [1], black light, S. E. Thewke; Boone Co., Columbia, 27 July 1978 [1], Marlin E. Rice; Boone Co., 29 June 1975 [2], south of Columbia, S. E. Thewke, blacklight; Boone Co., 1 August 1972 [1], S. O. Swadener; Boone Co., Ashland, 22 July 1968 [1], 4 August 1968 [1]; Boone Co., Ashland Wildlife Area, 9 August 1968 [1], light trap; 20 July 1978 [1], 5 August 1978 [1], G. Ulmer; Randolph Co., 1 mi. E. Moberly, 16 July 1972 [2], 29 July 1972 [1], T. G. Riley; 2 July 1977 [1], E. G. Riley; Howard Co., Bell's Orchard, Boonville, 21 July 1957 [1], F. Wood; Cole Co., 18 July 1970 [1], Ramon Gass; Douglas Co., Vanzant, 19 July 1975 [1], 1 July 1977 [1]; Maries Co., 5 mi. NW Vienna, 12 May 1972 [1], S. E. Thewke, reared in lab; Jackson Co., 9 July 1967 [1], Leg. Roger L. Heitzman, UV; Kan. C. [1] (UMRC); St. Louis, 4 July 1907 [1], E. Liljeblad (UMMZ); Randolph Co. (TAMU); Jackson Co., July 1955 [1], Ronald H. Pine, determined by J. F. Lawrence (SEMC); St. Louis, 4 July 1907 [1], G. A. Akerlind; Stanton, 25 July 1966 [1], K. Stephan; Benton Co., 3 mi. NW of Warsaw, 3 July 1975 [1], R. L. Heitzman, uv light; Clay Co., Coolie Lake, 18 July 1968 [3], 17 May 1975 [1], 1 September 1986 [1], R. Heitzman, uv light; 17 June 1971 [4], G. Nelson and R. Heitzman, light; Jackson Co., Blue Springs, 16 July 1997 [1], G. H. Nelson, uv light; Jackson Co., Raytown, 5 July 1973 [1], 7 July 1973 [1], 9 July 1973 [2], 11 July 1973 [3], 13 July 1973 [2], 16 July 1973 [2], 17 July 1973 [5], 18 July 1973 [5], 19 July 1973 [1], 20 July 1973 [1], 26 July 1973 [1], 27 July 1973 [6], 28 July 1973 [3], 29 July 1973 [2], G. H. Nelson, uv light; Morgan Co., Lake o't Ozarks, 11 June 1982 [1], R. Heitzman, blacklight; Wayne Co., Markham Spring NF, 28 July 1986 [1], J. R. Heitzman; cane, cypress, tupelo, pine and deciduous forest (FSCA); Franklin Co., 1 July 1967 [1] (OSUC); Benton Co., *Zenopsis picea* (Shockley and Cline 2004); Columbia, 15 July 1966 [1], Poe, at light (WIRC); One specimen badly damaged labeled only MO (MSUC); Stanton, 25 July [19]66 [1], K. Stephan (CNCD); Boone Co., west of Columbia, 26 June 2012, male [1], specimen not kept, black light, back yard with second growth oak-hickory woodland, Lee Elliott, <http://bugguide.net/node/view/670041> (Lee Elliott, personal communication); Missouri, USNM (Hoffman et al. 2002); Missouri (Hájek 2011).

NEBRASKA: NEW STATE RECORD. Richardson Co., Indian Cave State Park Trail, 1 August 2003, male [1], at night in rotting stump, M. J. Paulsen; Nemaha Co. Indian Cave Trail, 14 July 2006, female [1], MV light, S. Spomer; Otoe Co., Lewis and Clark Visitor Center, 30 July 2007, male [2], lights, M. J. Paulsen (UNSM); Nemaha Co., Indian Cave Park, 17 July 2006 [1], UV light, MJP; Richardson Co., Indian Cave Trail, 17 June 2004, male [1], blacklight, M. J. Paulsen (MJPC); Sarpy Co., Fontenelle Forest, Bellevue, 9 July 2009, male [1], came to light, no specimen kept, Loren and Babs Padelford, <http://bugguide.net/node/view/490001> (Babs Padelford, personal communication).

NEW JERSEY: "Coleoptera: Mr. Kaeber exhibited *Zenopsis picea* Beauv. Collected at Red Banks, New Jersey, July 4, 1908." (Greene 1915); "*Zenopsis picea* Beauv. Red Bank, July 4, 1908. Kaeber." (Weiss 1916); not listed by Hájek (2011).

NORTH CAROLINA: 7 pinned specimens (NCSU 2011); Columbus Co., Lake Waccamaw, 6 July 1985 [1], WES and A. Gerberich "At black light in oak and pine scrub sand barrens near lake", USNM (Hoffman et al. 2002); no known specimens (Brimley 1938); North Carolina (Hájek 2011).

OHIO: Clinton Co., 18 July 1955 [1], 8 July 1961 [1], 9 June 1968 [1]; Richland Co., 20 July 1967 [1] (OSUC); Cincinnati, 12 July 1947 [1], D. H. Kistner; Columbus, 18 July 1962 [1], DJ and KN Knull; Champaign Co., 24 July 1954 [1]; Athens Co., 1 July 1956 [1], 19 July [1] 1956, L. W. Ressegger (FMNH); Hamilton Co., Cincinnati, 4 July 2012 [1], Steve Pelikan, <http://bugguide.net/node/view/668860>; Knox Co., 11 July 1941 [1], 16 July 1942 [1], H. F. Strohecker (FSCA); near Cincinnati (Dury 1902); Ohio (Downie and Arnett 1996); Ohio (Hájek 2011).

OKLAHOMA: Blaine [1], Caddo [1], Carter [1], LeFlore [1], Noble [1], Osage [1], Pawnee [1], Payne [13], Sequoyah [1], Tulsa [1], and Woodward [1] counties, Dates range from June 14 to Aug. 13. Most were taken in black light traps." (OSEC); Grady Co. (UALR); Latimer Co. (TAMU); Sequoyah Co., Vian, 14 May 1969 [1], S. Weaver, blacklight; Red Rock Canyon SP, 26 July 1975 [1], K. Stephan (FSCA); Summerfield, 14 June 1939 [1], Kaiser-Nailon (CNCI); Sequoyah Co., 1 July 1929 [2], R. D. Bird, R. Hopping Collection (CASC); Cleveland Co., Norman, 3 July 1975 [1], 31 July 1975 [1], 8 August 1975 [1], 12 July 1976 [1], 18 July [1] 1976, William D. Shepard, leg, light trap; Okfuskee Co., 5 mi N Beardon, 25 July 1976 [2], William D. Shepard, leg, in rotten log (CISC); Oklahoma, USNM (Hoffman et al. 2002); Oklahoma (Hájek 2011).

PENNSYLVANIA: Hummelstown, 14 July 1917 [1], J. N. Knull (FMNH); Phila., P. A., no date [1] (OSUC); Delaware Co. (TAMU); Cowens Gap SP, 10-11 July 1988 [1], E. Giesbert (FSCA); southwestern Pennsylvania, rare (Hamilton 1895); "Pittsburg[h], IX. 19 20 Pa" [1] (CNCI); Pennsylvania [1], Carl Fuchs Collection (CASC); Pennsylvania (Downie and Arnett 1996); Pennsylvania (Staines 1983); Pennsylvania (Hájek 2011).

SOUTH CAROLINA: Florence Co. [1]; Pickens Co. [1]; Pickens Co., one in alcohol (CUAMD 2007); Florence Co., June-July, at lights, tanglefoot screen, under dead oak bark (Kirk 1969); Horry Co., Myrtle Beach, 22 August 1947 [1], T. H. Hubbell (FSCA); South Carolina (Hájek 2011).

TENNESSEE: NEW STATE RECORD. Deer Lodge, 20 August 1932 [1], B. Benesch (FMNH); Deer Lodge, 25 June 1916 [1], C. Kreiger (UMMZ).

TEXAS: Anderson, Bell, Brazoria, Brazos, Fort Bend, Kaufman, Limestone, Montgomery, Sabine, and San Jacinto counties (TAMU); Fort Bend Co. (UALR); Nacogdoches Co., Nacogdoches, 3 July 1994 [1], C. Ely (SEMC); Austin Co., Austin SP, 8-9 July 1980 [1], R. H. Arnett, Jr., blacklight trap, oak; Houston, 5 July 1980 [1], O. E. Hunt, light; Anderson Co., Engling WMA, 29 May 1998 [1], Godwin and Wappes, MV/UVL; Montgomery Co., Woodlands, 14-20 June 1977 [1], 25 June 1977 [1], 24-30 June 1979 [1], J. E. Wappes (FSCA); Waco, July 1968 [1], D. Kavanaugh (CNCI); Anderson Co., Blackfoot, Engeling Wildlife

Management Area, 12 June 1994, male [1], Mike Quinn, <http://bugguide.net/node/view/453068>; Texas, Victoria, “in morschen Stammen”, 20 December 1902 – 22 February 1910, 5 larvae, J. D. Mitchell, leg. (Emden 1932; Mark Deyrup, personal communication); Texas (Staines 1983); Texas (Hájek 2011).

VIRGINIA: Middleburg, 7 July 1948 [1], H. L. Dozier (FSCA); Charles City Co., Harrison Lake National Fish Hatchery, 12 July 2006, male [1], C. E. Hatter; Prince William Co., Bull Run Mountains, 7 July 2006, male [1], 4 August 2006, female [1], uv trap, K. H. Bass and M. J. Kieffer; 29 July 2005, female [1], uv, M. J. Kieffer, K. H. Bass, and J. T. Warden; Surry Co., Chipokes State Park, 15 August 2007 [1], uv trap, basic mesic forest, A. C. Chazal and M. E. Dougherty (AVEC); Middlesex Co., 18 July 2000 [1], Malaise trap; Dickenson Co. [7]; City of Chesapeake [4] and City of Virginia Beach [1], “Robert Vigneault almost certainly by pulling off loose bark” (VMNH, Richard Hoffman, personal communication); Fairfax Co., Black Pond, 9-19 July no year given [1], F. C. Craighead, reared from *Castanea dentata*, USNM; Falls Church, 3 June 1917 [1], G. M. Greene, USNM; near Plummer’s Island, 27 July 1920 [1], H. S. Barber, USNM; King George Co., Chotank Creek Natural Area Preserve, Berthaville, 21 August 2001 [1], K. L. Derge and R. O. Wilson, uv light, VMNH; King and Queen Co., Dragon Run Swamp, 18 July 2000 [1], C. S. Hobson and A. C. Chazal, VMNH; Loudoun Co., Bluemont, 15 July 1911 [1], W. R. Walton, USNM (Hoffman et al. 2002); Virginia (Hájek 2011).

WEST VIRGINIA: Morgan Co., 7 km east of Paw Paw, 25 July 1999 [1], Frank Guarnieri, uv and mercury-vapor light, <http://bugguide.net/node/view/361077>; Hampshire Co., 10 km S. Capon Bridge at Cacapon River, 21-22 July 2002 [1], WES, J. M. Swearingen, J. R. Ott and E. Silverfine, “At black light in mixed mature forest, crest of shale slope above river”, USNM (Hoffman et al. 2002); West Virginia (Hájek 2011).

DISTRICT OF COLUMBIA: #1351 *Zenopsis picea* Beauv. (Ulke 1903); Oxon Run, 16 July 1921 [1], E. V. Shannon, “on oak bark”, USNM (Hoffman et al. 2002); District of Columbia (Hájek 2011).

Discussion

More than 475 specimen records were collected for *Zenopsis picea* during this study from 26 states and the District of Columbia. Iowa, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey now mark the northern edge of the known range and Nebraska, Kansas, Oklahoma, and Texas the western edge. No specimens were located from Minnesota, Wisconsin, South Dakota, and Canada (Ralph Holzenthall, Steve Krauth, Jeff Gruber, Rita Velez, Francois Genier, Serge Laplante, personal communication). Records from Alabama, Arkansas, Delaware, Michigan, Mississippi, Nebraska, and Tennessee represent new state records having not been cited by Hájek (2011); Hájek (2011) did not list Iowa as he and other investigators missed the record published by King (1914). The single Michigan specimen from 1956 was collected just south of Detroit near the Detroit River and thus across from Ontario, Canada, indicating the possibility that the species may occur in southern Canada. It may also be present in Mexico just south of Texas but no attempt was made to locate specimens south of the United States. Most specimens were collected south of 42 degrees north latitude and east of 99 degrees west longitude (Fig. 1).

Month of collection was obtained from 390 specimens with adults being active from April through October. The earliest adult collected was 26 April [1987] in Baltimore Co., Essex, Maryland and the latest collected specimen was 2 October [1976] from Palm Beach Co., Belle Glade, Florida. Temporal distribution of adult collection date records were: April (1), May (7), June (60), July (266), August (51), September (4), and October (1).



Figure 1. Range map of *Zenopsis picea*.

Label data obtained indicate a few specimens were reported as having been reared from wood or found on rotten wood, a tree, stump, under bark, or under driftwood; most specimens were collected at lights or in a light trap. Many specimens were noted as collected in association with older trees in state forests, parks, and wildlife areas as well as national parks with label data of woodland, forest, mixed forest, basic mesic forest, mature mixed forest, and mixed mature forest. According to Hoffman et al. (2002) "the species is perhaps an indicator of mature forest habitat".

Prior to Euro-American settlement the Iowa collecting sites were probably dominated by grasslands and savanna on the uplands and forest habitat only along river corridors; today the sites are dense oak woodlands and forest (Smith 1998; Mutel 2008). The collection site at Shimek State Forest is an upland area about two miles from the Des Moines River and three miles from the Missouri state line; the surrounding forest contains mostly white, red, and black oaks (Mark Leoschke, personal communication); the State of Iowa started to purchase these lands in the 1930s. The dominant upland tree species at Waubesa State Park is chinquapin oak (John Pearson, personal communication) with bur and white oak, basswood, paw paw, and many other tree species present. Pre-settlement vegetation of these loess hills was probably grassland and savanna (John Pearson, personal communication; Mutel 1989). The collection site is approximately five miles from the Missouri River and 5 miles from the Missouri state line. The State of Iowa purchased lands and founded this park in 1926 (Wolf 1991). Hardin City Woodland State Preserve contains forest on level upland, north-facing slope, and floodplain adjacent the Iowa River in

central Iowa with red and black oak, shagbark hickory, black and sugar maple, and basswood being common (Freese 2005). The Iowa River at this location meanders through a deep U-shaped wooded valley of glacial origin (Freese 2005); the acreage for this preserve was purchased during 1959 (Herzberg and Pearson 1991). Sharon Bluffs State Park located along the Chariton River about nine miles from the Missouri border, contains a forest of white and pin oak and shagbark and kingnut hickory (Mark Leoschke, personal communication) with buckeye, basswood, and silver and sugar maple also present; the original first acreage for this park was purchased during 1929 (Wolf 1991).

After collecting the first specimens in Iowa, far from the published known range (Young 2002), my first thought was that the species may now be spreading north and westward following human disturbance, with the beetle possibly spreading by migrating up the major river valleys (Mutel 2008; Smith 1998; Jungst et al. 1998; Schwert 1996; Cruden and Gode 2000; Schlicht et al. 2007; Turnbull 1980). But specimen data from many decades ago, especially from Kansas before 1877 (Popenoe 1877) and Iowa (King 1914), indicate the species may already have been this far west and north but just seldom collected and these western records were unknown or missed by researchers. Recent collecting throughout its range indicates *Z. picea* is present in forested areas across a large geographic area of the eastern and central United States but overall probably not in large numbers.

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